

U.S. Patent Application No. 10/723,297
Amendment dated July 13, 2005
Reply to Office Action dated April 13, 2005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (Currently amended): A method of making an indazole comprising:

- a) ~~nitrosation of an aromatic aldehyde to form a nitroso aromatic aldehyde; and~~
nitrosating a 2-aminobenzaldehyde to form a 2-nitrosaminobenzaldehyde,
- b) reacting said ~~the nitroso aromatic aldehyde~~ 2-nitrosaminobenzaldehyde with at least one reducing agent to form an indazole; and
- c) reacting said ~~the~~ indazole with a sulfonyl halide or sulfonic anhydride to form a corresponding sulfonic ester.

Claim 2 (Currently amended): The method of claim 1 wherein the amine group of the 2-aminobenzaldehyde in step a) is substituted with a hydroxyalkyl group and wherein the indazole formed in step b) is a 1-(hydroxyalkyl)indazole, the method further comprising converting the 1-(hydroxyalkyl) indazole into an 1-(aminoalkyl)indazole by the steps of:

- d) reacting said ~~the~~ corresponding sulfonic ester with said ~~a~~ metal azide to yield an ~~azido indazole~~ a 1-(azidoalkyl)indazole; and
- e) reacting said ~~azido indazole~~ the 1-(azidoalkyl)indazole with a hydrogen source and a catalyst to yield ~~amino alkyl indazole~~ 1-(aminoalkyl)indazole.

Claim 3 (Currently amended): The method of claim 1, wherein said ~~the~~ amine group of the 2-aminobenzaldehyde in step a) is substituted with a hydroxyalkyl group and wherein the indazole formed in step b) is a hydroxy alkyl indazole 1-(hydroxyalkyl)indazole.

Claims 4 - 7 (Canceled).

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Claim 8 (Original): The method of claim 1, wherein said reducing agent is a metal.

Claim 9 (Original): The method of claim 1, wherein said reducing agent is zinc.

Claim 10 (Currently amended): The method of claim ~~1~~ 2, wherein said catalyst is in the presence of at least one organic solvent.

Claim 11 (Currently amended): The method of claim 10, wherein said organic solvent comprises ~~acetic acid~~ ethanol.

Claims 12 - 15 (Canceled).

Claim 16 (Currently amended): A method of making an indazole comprising:

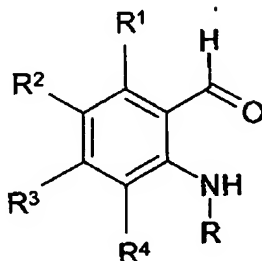
- a) nitrosating a 2-(hydroxyalkyl)aminobenzaldehyde to form a 2-(hydroxyalkyl)nitrosaminobenzaldehyde; and
- b) reacting said 2-(hydroxyalkyl)nitrosaminobenzaldehyde with at least one reducing agent to form ~~an indazole~~ a 1-(hydroxyalkyl)indazole.

Claim 17 (Currently amended): The method of claim 16 further comprising:

- c.) reacting ~~said indazole~~ the 1-(hydroxyalkyl)indazole with a sulfonyl halide or sulfonic anhydride to form a corresponding sulfonic ester;
- d.) reacting ~~said~~ the corresponding sulfonic ester with a metal azide to yield a 1-(azidoalkyl)indazole; and
- e.) reacting ~~said~~ the 1-(azidoalkyl)indazole with a hydrogen source and a catalyst to yield a 1-(aminoalkyl)indazole.

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Claim 18 (Original): The method of claim 16, wherein said 2-(hydroxyalkyl)aminobenzaldehyde has the formula



wherein

R is a C₂ to C₁₂ alkyl group substituted with at least one OH group and optionally substituted with phenyl, methoxyphenyl, (dimethylamino)phenyl, OR⁵, OC(=O)R⁵, OC(=O)OR⁵, N(R⁵)₂, N(R⁵)C(=O)R⁵, N(R⁵)C(=O)OR⁵, or with one or more F atoms; R¹, R², R³ and R⁴ are independently H, F, Cl, Br, CF₃, OH, OR⁵, OC(=O)R⁵, OC(=O)OR⁵, N(R⁵)₂, N(R⁵)C(=O)R⁵, N(R⁵)C(=O)OR⁵, NO₂, CN, N₃, SH, S(O)_nR⁵, C(=O)R⁵, COOH, COOR⁵, CON(R⁵)₂, C₁ to C₆ alkyl optionally substituted with phenyl, methoxyphenyl, (dimethylamino)phenyl, C(=O)R⁵, COOH, COOR⁵, CON(R⁵)₂, CN, OR⁵, OC(=O)R⁵, OC(=O)OR⁵, N(R⁵)₂, N(R⁵)C(=O)R⁵, or N(R⁵)C(=O)OR⁵; or R¹ and R² as herein defined taken together form a ring, or R² and R³ as herein defined taken together form a ring, or R³ and R⁴ as herein defined taken together form a ring; R⁵ is C₁ to C₆ alkyl optionally substituted with phenyl, methoxyphenyl, (dimethylamino)phenyl, methoxy, ethoxy, benzyloxy, or with one or more F atoms, or R⁵ is phenyl, methoxyphenyl, or (dimethylamino)phenyl; and n = 0, 1, or 2.

Claim 19 (Canceled).

Claim 20 (Original): The method of claim 16, wherein said reducing agent is zinc.

Claim 21 (Original): The method of claim 16, wherein said 2-

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(hydroxyalkyl)benzaldehyde is enantiomerically enriched.

Claim 22 (Original): The method of claim 17, wherein said catalyst is palladium on charcoal.

Claim 23 (Original): The method of claim 17, wherein said hydrogen source is ammonium formate.

Claim 24 (Original): The method of claim 17, wherein said 1-(aminoalkyl)indazole is enantiomerically enriched.

Claim 25 (Original): The method of claim 18, wherein R is 2-hydroxypropyl.

Claim 26 (Original): The method of claim 18, wherein R is (*R*)-2-hydroxypropyl.

Claim 27 (Original): The method of claim 18, wherein R is (*S*)-2-hydroxypropyl.

Claim 28 (Original): The method of claim 18, wherein R¹, R² and R⁴ are H, and R³ is benzyloxy.

Claim 29 (Original): The method of claim 18, wherein R is 2-hydroxypropyl, R¹, R² and R⁴ are H, and R³ is benzyloxy.

Claim 30 (Original): The method of claim 18, wherein R is (*R*)-2-hydroxypropyl, R¹, R² and R⁴ are H, and R³ is benzyloxy.

Claim 31 (Original): The method of claim 18, wherein R is (*S*)-2-hydroxypropyl, R¹, R² and R⁴ are H, and R³ is benzyloxy.